

Preferably, the disclosed insert is used in a modular jack for receiving and compensating a signal transmitted through the eight leads from a standard RJ45 wire plug. The EIA T568B has eight positions numbered 1-8 which are paired as follows: 1-2 (pair 2), 3-6 (pair 3), 4-5 (pair 1), 7-8 (pair 4). For the EIA T568B or T568A style configurations of category 5 and 6 UTP cabling (and most others), there are also eight positions. Thus, there are eight elongated conductive elements disposed on the dielectric support member. Again, each element has a front portion with a contact portion for establishing electrical contact with one of the eight leads and each rear portion has a connecting device for further transmission of the signal. These conductive elements are advantageously arranged in a positional relationship with respect to each other for forming a capacitance to compensate electrical noise during transmission of the signal. This advantageous positional relationship may involve positioning the front portions of the eight conductive elements in a substantially parallel alignment along a longitudinal axis, and having the rear portions include parallel portions as well as portions transverse to the longitudinal axis.

An arrangement for compensating cross-talk noise in an electrical signal is also disclosed herein, such arrangement including a dielectric modular jack housing having a signal transmission media receiving space for signal transmission media having a plurality of conductive members, such as a UTP cable and plugs. The plurality of pairs of elongated conductors are disposed in the signal transmission media receiving space. Each elongated conductor has a front end portion with a contact area for mating with the signal transmission media and a back end portion that includes a connecting device for connecting with a terminal on a printed circuit board ("PCB"). The PCB may have multiple terminals for connecting with other electrically conductive media, such as a UTP cable. In accordance with the present disclosure, the plurality of pairs of elongated conductors are in a positional relationship with respect to each other to form a capacitance for compensating electrical noise in a signal transmission. The positional relationship may involve the front end portions being substantially parallel with respect to each other along

a longitudinal axis and/or the rear end portions being partially parallel and partially transverse with respect to the axis.

The electrical noise may be reduced by the positional relationship which
5 advantageously results in a combination of dual and separate signal feedback reactances.
The reactances in the insert device compensate for pair to pair NEXT, FEXT and
impedance in a simple and cost effective unit solution.

These and other unique features of the method of the systems, devices and methods
10 of the present disclosure will become more readily apparent from the following description
of the drawings taken in conjunction with the detailed description of preferred and
exemplary embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

15 So that those having ordinary skill in the art to which the subject disclosure
appertains will more readily understand how to construct and employ the subject
disclosure, reference may be had to the drawings wherein:

20 Figure 1 is a perspective view of an exemplary insert device in accordance with the
present disclosure.

Figure 2 is an exploded view of the exemplary insert device of the present
disclosure depicted in Figure 1.

25 Figure 3 is a top plan view of the lead frames associated with the upper portion of
the exemplary embodiment of the present disclosure depicted in Figure 1.

Figure 4 is a perspective view of the lead frames associated with the upper portion
of the embodiment of the present disclosure depicted in Figure 1.

Figure 5 is a further top plan view of the lead frames associated with the lower portion of the embodiment of the present disclosure depicted in Figure 1.

5 Figure 6 is a perspective view of the lead frames associated with the upper portion of the embodiment of the present disclosure depicted in Figure 1.

Figure 7 is a top plan view of the embodiment of the present disclosure depicted in Figure 1.

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Figure 8 is a bottom plan view of the embodiment of the present disclosure depicted in Figure 1.

Figure 9 is a side plan view of the embodiment of the present disclosure depicted in Figure 1.

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Figure 10 is a rear plan view of the embodiment of the present disclosure depicted in Figure 1.

Figure 11 is a front plan view of the embodiment of the present disclosure depicted in Figure 1.

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Figure 12 is a perspective view of an exemplary arrangement of components used with the inserts fabricated in accordance of the present disclosure.

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Figure 13 is a view of a RJ45 plug illustrating the standard arrangement of the RJ45 plug contacts.